



Montana  
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# Science Model Teaching Unit Day and Night

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**Grade 1 - Approximate Duration: 120 minutes**

## Stage 1 Desired Results

### Established Goals

**Science Content Standard 4:** Students, through the inquiry process, demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space.

**Benchmark 4.6:** Identify objects (e.g., moon, stars, and meteors) in the sky and their patterns of movement and explain that light and heat comes from a star called the sun.

**Essential Understanding 3:** The ideologies of Native traditional beliefs and spirituality persist into modern day life as tribal cultures, traditions, and languages are still practiced by many American Indian people and are incorporated into how tribes govern and manage their affairs.

Additionally, each tribe has its own oral histories, which are as valid as written histories. These histories pre-date the "discovery" of North America.

### Understandings

- The Sun is a Star, a hot ball of gas producing heat and light.
- The planet we live on is Earth.
- The Earth spins or rotates.
- Earth moves around the Sun; the Sun does not move.
- One complete rotation of the Earth takes 24 hours, causing daytime and nighttime.
- The Sun is always shining.
- Earth's own shadow causes the dark of night.

### Essential Questions

- What is the name of the planet we live on?
- Why is it light outside during the day?
- How are Earth and the sun different?
- What do we see in the sky at night?
- Why don't we see the stars during the day? Where do they go?
- Why do we see the sun during the day?
- Where is the sun during different times of the day?
- Where is the sun at night?
- Why is it dark at night?
- How can the sun shining in a tipi be a way of telling time?



*Science Grade 1 Day and Night (continued)*

*Students will be able to...*

- demonstrate the Earth rotating on its axis.
- exchange ideas of what happens during the nighttime and daytime regarding the Earth and the sun.
- determine the natural cycle of day and night.
- relate the idea of light and shadow to day and night?

*Students will know...*

- key terms: Earth, sun, rotate, cycle, light, shadow
- the sun is a star; the Earth is a planet.
- the Earth moves, the sun does not.
- a day is 24 hours – one rotation of the earth.
- The Earth turning creates a pattern/cycle.
- how some Crow people tell time by the position of the sun in the tipi.

**Stage 2 Assessment Evidence**

**Performance Tasks**

- Students will demonstrate knowledge using a KWL chart.
- Students will create a pattern with pattern blocks and student created pictographs, relating to the day and night cycle.
- Students will write and illustrate a day/night book of two opposite locations in the world.

**Other Evidence**

- Observation of student in lab activity
- Participation in class discussions
- Individual questioning of students

**Stage 3 Learning Plan**

This kinesthetic, active format will appeal to all learning styles from the lab of rotating around the sun to creating the pattern cycles of the day and night. The last activity will demonstrate the students' understanding of the sun always shining as the students create a "Where in the World" flip book.

**Day 1**

- Students will begin the lesson with a KWL chart.
- Everything they "Know" about day and night will be written in the first column in a class discussion and everything they "Want to Know" in the second column.
- Students will complete the last column "What I Learned" at the end of the lesson.
- Read to the class, How Chipmunk Got his Stripes. (Iroquois, Cherokee, Mohawk, & Abenaki Versions)
- Discuss how this teasing game of Brown Squirrel and Bear wasn't good for either animal.
- Why wasn't Bear able to keep the Sun down?
- Demonstrate the rotation of the Earth (room may need to be darkened prior to lesson)
- One student becomes the sun using a flashlight or lamp.
- Discuss - what is the sun?
- Demonstrate the sun's heat and light with the lamp/flashlight.
- Another student becomes the Earth. Discuss the Earth's location compared to the sun.
- Position the "earth student" two feet away from the "Sun student."

### *Science Grade 1 Day and Night (continued)*

- Discuss what do we see moving in the sky? Explain the Earth, the planet, is moving not the sun.
- Demonstrate the clockwise rotation of the Earth.
- The “Sun” student will have the lamp shining straight ahead at the “Earth student
- The “Earth” student will slowly rotate clockwise one time around moving over only slightly.
- Students will then participate in an activity demonstrating the Earth’s rotation. (Discuss how scientist use models to represent nature.)
- Students will draw a quick figure of themselves in the center of a paper plate. This picture represents them standing on the Earth in their own home town.
- One student at a time rotates slowly clockwise, the sun shines on the “Earth” student.
- Classmates are observing and calling out the daytime and nighttime. What pattern is noticed? (The light shines on the right side of the Earth 1st.)
- Students will next track the light by when they think the sun is rising on their person on the plate and when the sun is setting. How can they tell? What pattern is being created, how do we know?
- The class will observe the light on the plate of “Earth” and will say out loud as it happens; sunrise, day, sunset, and night as the Earth rotates three times around.
- Students will demonstrate their understanding on the day and night cycle by drawing a pattern design to represent sunrise, day, sunset, and night with pictographs of suns and moons, or other pictures of their choice.
- Depending on student ability, some students may graph only the day and night cycle. An enrichment activity can be done by students adding noon and midnight to their pattern.
- Allow time for students to discuss and share their patterns.
- Display students’ cycle patterns on the wall for reflection and further evaluation. Students will recount what is occurring in the cycle and how it relates to the Earth and the Sun.

### **Day 2**

- Review the motion of the sun using the lamp and planet Earth student.
- Allow time for students to discuss what they learned yesterday and repeat again for understanding and for students who may have been absent.
- Review KWL chart, add any new thoughts, ideas, or insights to the poster. (Address misconceptions)
- What would be a better model of the Earth than our paper plate? With the globe now representing the Earth, find the general location of your school’s town. Mark the location on the globe with a sticker.
- What is happening to the light when we are in darkness? Allow time to test theories.
- Discuss how we are sharing the light when we are in our nighttime cycle –the light is now with other people on the other side of the world.
- Observe how the Earth’s own shadow creates the night.
- Locate another town on the other side of the world.
- Run the student model of the Earth to observe the pattern of these two different towns during one Earth rotation.
- Check sunrise/sunset Web site to confirm student theories. Brainstorm what people might be doing in the other location when we are experiencing daytime.

## *Science Grade 1 Day and Night (continued)*

### **Day 3**

- Read “Teepee, Sun, and Time;” which tells how the Crows can tell time based on the sun’s position inside a teepee. Discuss how this relates to the movement of the Earth in a one-day rotation.

### Tips for teachers

- Make sure lights are working properly
- Keep all lab items together in a container for easy dispersal.
- Keep in mind time allotment and record for next use.

### **Resources**

#### Books

"How Chipmunk Got His Stripes. 2001", color illustrations From Joseph Bruchac (Abenaki) and James Bruchac (Abenaki)

#### Web sites

Sunset and Sunrise Times Around the World

[www.gaisma.com](http://www.gaisma.com)

Teepee, Sun, and Time. 1978 Real Bird, Henry. The Indian Reading Series.

<http://www.nwrel.org/indianed/indianreading/index.html>

Copies of the book may be downloaded from the Northwest Indian Association Web site (check with your local school librarian for the printed copy sent out by the Office of Public Instruction).

### Materials/Resources Needed

- Darken room - may need paper to cover windows
- Lamp/flashlight
- Paper plates
- Globe

*Science Grade 1 Day and Night (continued)*

Two stickers for globe "towns"

Cover for Student Flipbook  
Make one copy for each student.

